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THE

FERTILIZER

SITUATION

1965-66

NITROGEN PHOSPHATE

POTASH

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Stabilization and Conservation Service
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THE FERTILIZER SITUATION FOR 1965-66 1/

General Situation

Net U. S. supplies of fertilizer materials for 1965-66 will total 13,428,000 tons of the primary plant nutrients -- nitrogen (N), phosphate (P_2O_5) and potash (K_2O). This is 15 percent more than last year. The 1965-66 supply is double that of eight years ago.

Net supplies of nitrogenous materials will total about 5,645,000 tons of N, up 14 percent from last year; phosphatic materials about 4,461,000 tons of P_2O_5 , up 22 percent; and potash for fertilizers about 3,222,000 tons of K_2O , up 10 percent.

Supplies are assumed to be enough to relieve the tight situation of the past two or three years. However, industry reports that some spot orders cannot be filled. Some materials are reported to be in short supply due largely to their being preferred by mixers, bulk blenders and farmers.

Foreign trade data are expected to show that the United States is still a net importer of nitrogenous and potassic materials and a net exporter of phosphatic materials.

Phosphate rock and potassium chloride are the only materials exported in larger quantities than last year except materials for which requirements of the Agency for International Development (AID) are sizeable. Delayed scheduling of shipments precludes marked increases in exports in this fertilizer year. An exception is ammonium sulfate shipped mainly to India. Industry is showing a more active interest in foreign markets for fertilizers.

The "spring rush" is the climax to the fertilizer year, -- a crucial period for the fertilizer industry trying to supply farmers. The prevailing spring weather conditions have a major influence on fertilizer demand. The shortage of boxcars may adversely affect industry's ability to deliver the heavy volume of fertilizers needed during the rush season.

Supply estimates in this report are based on trends in production and inventory data for July through December only, on foreign trade statistics for the same period, and on supplemental information from the industry. The estimates for nitrogen will be low if some of the large ammonia plants nearing completion get into full production for 60 to 90 days before the end of this fertilizer year. In previous years the start-up of new plants after the first half of the fertilizer year did not seriously affect these estimates because new plant size was small compared with total existing capacity.

1/ The fertilizer year is from July through June 30.

Nitrogen (N)

Supplies of nitrogenous materials for domestic fertilizer use in 1965-66 will total 5,645,000 tons of nitrogen (N), an increase of 14 percent over last year (table 1). Total nitrogen supply from domestic sources will be up about 16 percent. Even with marked increases in anhydrous ammonia production, the U. S. continues to be a net importer of nitrogen, imports exceeding exports by 21,000 tons.

Production -- Total production of anhydrous ammonia in 1965-66 will be about 9.4 million tons, 50 percent more than only three years ago. Production records were broken each successive month, October through December, 1965, over the previous record in May 1965.

Anhydrous ammonia for direct application and formulation of mixed fertilizers will be up about 15 percent over last year. Supplies of nitrogen solutions are up about 10 percent.

Solid ammonium nitrate supplies are expected to increase about 4 percent. Ammonium sulfate supplies will be up about 38 percent. Solid urea will increase about 19 percent. Other solid nitrogenous materials will increase about 24 percent, largely as ammonium phosphates.

Imports -- Imports of nitrogen will be about 503,000 tons of N, 7 percent more than last year. The indicated increases in ammonia, sodium nitrate and "all other" nitrogenous materials will more than offset decreases in ammonium sulfate and urea.

Exports -- Total nitrogen exports are expected to be 482,000 tons of N, up 20 percent over 1964-65. Exports of ammonium sulfate are expected to be about double those of last year. Out-movement of all other nitrogenous materials is lagging behind the previous year, as much as 47 percent behind in the case of urea.

Nitrogen capacities -- Anhydrous ammonia capacity on January 1, 1966, is estimated at 11,059,000 tons of NH_3 , an increase of 2.3 million tons during the last year. It is expected to be 17.9 million tons by 1968, double that on January 1, 1965 (table 2). These estimates are based on published capacities and construction schedules.

Table 1. -- NITROGEN: Estimated supply of nitrogen for fertilizer purposes, United States and possessions, 1964-65 and 1965-66

(1,000 short tons of N)

Item	1964-65 <u>1/</u>	1965-66
<u>Supply from domestic production</u>		
Solids:		
Ammonium nitrate <u>2/</u>	653	679
Ammonium sulfate <u>2/</u>	455	629
Urea	259	309
All other solids <u>3/</u>	456	566
Total solids	<u>1,823</u>	<u>2,183</u>
Liquids:		
Ammonia (including aqua)	1,835	2,114
All other	<u>1,212</u>	<u>1,327</u>
Total liquids	<u>3,047</u>	<u>3,441</u>
Total (solids and liquids)	4,870	5,624
<u>Imports</u>		
Ammonium nitrate	60	59
Ammonium sulfate	40	33
Urea <u>2/</u>	88	73
Sodium nitrate	59	61
Ammonia (including aqua)	146	178
Nitrogen solutions	22	22
All other	<u>55</u>	<u>77</u>
Total	<u>470</u>	<u>503</u>
<u>Exports</u>		
Ammonium nitrate	39	30
Ammonium sulfate	135	270
Urea	19	10
Ammonia (including aqua)	102	96
All other	<u>97</u>	<u>76</u>
Total	<u>392</u>	<u>482</u>
NET DOMESTIC SUPPLY	4,948	5,645

1/ Revised.

2/ Adjusted for estimated quantity going into non-fertilizer uses.

3/ To avoid duplication the figure for "all other solids" has been adjusted by the estimated amount of imported ammonia used in primary materials.

Table 2. Anhydrous ammonia capacity: Number of plants and estimated production capacity, in thousands of tons of ammonia, on January 1, by calendar years, 1965-68

	1965		1966		1967		1968	
	No.		No.		No.		No.	
	Plants	NH ₃	Plants	NH ₃	Plants	NH ₃	Plants	NH ₃
Capacity Jan. 1	84	8,776	89	11,059	105	15,217	111	17,884
Start-up during year:								
Expansions	17)		8)		1)			
New plants	5)	2,283	16)	4,158	6)	2,667		

The trend is toward larger anhydrous ammonia plants. Size of earlier plants was increased by adding units or trains. About the time the first single-train 600 tons per day ammonia plant with centrifugal compressors started producing, a contract was awarded for the construction of a 1000 tons per day single-train plant. The first 1000-ton plant started producing near the beginning of 1966, and now ten others are scheduled. The first 1500 tons per day single-train plant was contracted in the fall of 1965, and three others have since been announced.

Production performance indicated the industry has the capacity to produce annually other nitrogen products as follows:

Nitric acid (total for all uses)	5,356,000 tons
Solid fertilizer grade ammonium nitrate	2,707,000 "
Ammonium sulfate other than coke-oven	2,143,000 "
Nitrogen solutions (N basis)	1,768,000 "
Urea (total all uses)	1,517,000 "

Phosphates (P₂O₅)

The growth in concentrated phosphatic fertilizer materials is phenomenal. Net domestic supplies of P₂O₅ in 1965-66 are expected to total 4,461,000 tons, about 22 percent more than in 1964-65 (table 3). Exports of P₂O₅ will be about 2.5 times imports.

Superphosphates -- The supply of normal and enriched superphosphate will decline about 3 percent from last year. Imports of these materials are negligible. Exports are expected to be less than one-half what they were in 1964-65.

Concentrated superphosphate supplies will be 20 percent more than last year. Imports are expected to be off 12 percent. Exports are lagging 20 percent behind last year.

Table 3. -- PHOSPHATE: Estimated supply of P_2O_5 for fertilizer purposes, United States and possessions, 1964-65 and 1965-66

(1,000 short tons of available P_2O_5)

Item	1964-65 <u>1/</u>	1965-66
<u>Supply from domestic production</u>		
Normal and enriched superphosphate	1,142	1,110
Concentrated superphosphate	1,316	1,576
Ammonium phosphate <u>2/</u>	1,031	1,322
All other <u>3/</u>	513	659
Total	<u>4,002</u>	<u>4,667</u>
<u>Imports</u>		
Concentrated superphosphate	19	17
Ammonium phosphate	33	82
All other	<u>46</u>	<u>45</u>
Total	<u>98</u>	<u>144</u>
<u>Exports</u>		
Normal superphosphate	26	12
Concentrated superphosphate	269	215
Ammonium phosphate	111	112
All other	<u>26</u>	<u>11</u>
Total	<u>432</u>	<u>350</u>
NET DOMESTIC SUPPLY	3,668	4,461

1/ Revised.

2/ Liquid and solid ammonium phosphate.

3/ Includes nitric phosphates, sodium phosphate, wet base goods, calcium metaphosphate, natural organics, phosphate rock and colloidal phosphate, basic slag, and estimates of wet and furnace phosphoric acid for liquid and solid mixed fertilizers and direct application.

Ammonium phosphates -- Ammonium phosphate supplies are expected to be 28 percent above last year, reflecting recent increases in production capability. Imports, primarily from Canada, are expected to more than double those of last year, while exports will be about the same as last year.

Phosphoric acid -- Production of wet-process phosphoric acid, a basic raw material for manufacture of concentrated superphosphate and ammonium phosphates, is about 30 percent ahead of last year. This increase has not yet been fully reflected in the production of concentrated solid phosphatic fertilizer materials. Part of the increase could be in liquid mixed fertilizers made from materials produced with superphosphoric acid. Superphosphoric acid is becoming a significant part of the concentrated P_2O_5 supply, but data are not available to show the extent of this development. Furnace phosphoric acid, used as a fertilizer primarily in liquid mixed fertilizers, is reported to be in especially short supply again this year.

Direct application of ammonium phosphates -- Direct application of selected grades of ammonium phosphates increased 18 percent from 1962-63 to 1963-64, the last year for which data are available (table 4). Gross tonnage increased from 497,545 tons in 1957-58 to 1,439,182 tons in 1963-64. The 16-20-0 grade has had a steady growth. More dramatic increases have been in 16-48-0 and 18-46-0 grades.

Ammonium phosphates, as the term is commonly used, includes monoammonium and diammonium phosphates, mixtures of the two or combinations with ammonium nitrate and/or ammonium sulfate. In addition to direct application, they are used in bulk blending and in mixing operations to produce grades containing all three primary plant nutrients.

The grades listed in Table 4 are not all-inclusive. N-P grades can be produced by mixing N and P_2O_5 source materials other than anhydrous ammonia and phosphoric acid, or by chemical processes.

Phosphate capacities -- Normal superphosphate capacity has not been estimated. The number of normal superphosphate plants reporting to the Bureau of the Census reached a peak in 1955 (table 5). Production declined 5 percent from 1958 to 1964 while the number of producing plants was 17 percent less.

Concentrated superphosphate capacity is estimated to be 1,754,000 tons of P_2O_5 . This capacity excludes some normal superphosphate plants and facilities allocated to ammonium phosphate manufacture. Plants newly announced or under construction will add about 532,000 tons of P_2O_5 by 1968.

Ammonium phosphate capacity is about 2.5 million tons of P_2O_5 . New plants announced, plants under construction and expansion of existing plants will add 603,000 tons of P_2O_5 by 1968. Many plants can produce either concentrated superphosphate or ammonium phosphates. Therefore, market requirements can change the type of product manufactured and thus change classification of a plant.

Table 4. -- Ammonium phosphates: U. S. consumption of selected grades for direct application, alternate years 1957-58 through 1963-64

(Short tons)

Grade	Fertilizer year			
	1957-58	1959-60	1961-62	1963-64
11-48-0	83,066	116,383	138,669	162,594
13-39-0	45,476	51,186	39,604	21,123
16-20-0	295,015	378,335	463,551	515,922
27-14-0	17,683	24,778	37,666	33,775
21-53-0	27,413	30,881	39,068	32,007
16-48-0	19,571	53,959	151,455	188,667
18-46-0		20,388	81,253	338,571
23-23-0		12,910	19,079	18,276
24-20-0	8,062	13,822	20,319	16,149
30-10-0	1,259	13,601	35,599	68,745
18-36-0		11,875	10,625	
29-14-0				32,587
11-37-0				10,766
Total	497,545	728,118	1,036,888	1,439,182
N content	78,227	117,973	173,660	249,486
P ₂ O ₅	144,747	217,977	326,608	480,316

Source: "Consumption of Commercial Fertilizers and Primary Plant Nutrients in the United States," Agricultural Research Service, U. S. Department of Agriculture. Nitrogen and phosphate content calculated.

Table 5. -- Normal superphosphate plants: Number in the continental United States reporting to the Bureau of the Census

Year	No. plants	Year	No. plants
1955	218	1960	208
1956	210	1961	198
1957	202	1962	195
1958	211	1963	187
1959	209	1964	181

Wet-process phosphoric acid capacity has increased from 1,348,000 tons of P_2O_5 on January 1, 1960, to an estimated 4,344,000 on January 1, 1966, an increase of 222 percent. Completion of new plants announced but not started, plants under construction, and replacements and expansions will add 1,503,000 more tons by 1968.

Potash (K_2O)

Net domestic supplies of potash for fertilizers in 1965-66 are expected to be 3,322,000 tons of K_2O , an increase of 10 percent over 1964-65 (table 6). Imports of 1,379,000 tons of K_2O are expected to be more than double the amount exported.

Potassium chloride -- Deliveries of muriate of potash from domestic production will be down about 8 percent from last year despite start-up by a new producer during the year. The boxcar shortage may reduce deliveries even more than currently anticipated.

Canada is the most important source of imported K_2O . Imports from there the first half of the year were 872,000 tons of material, . 78 percent above the same period last year. European material is expected to be down slightly from last year.

Exports of potassium chloride are up slightly from 1964-65.

Potassium sulfates -- Deliveries of potassium sulfate and potassium magnesium sulfate are likely to be about the same as a year ago. Imports will be down 23 percent. Exports are expected to be up 13 percent over last year.

Potash capacities -- U. S. potash capacity, as of January 1, 1966, is estimated at 3,600,000 tons of K_2O . Capacity increased about 525,000 tons during last year through expansion of existing facilities and progress toward attaining full production of two new facilities. Several companies are

Table 6. -- POTASH: Estimated supply of K₂O for fertilizer purposes,
United States and possessions, 1964-65 and 1965-66

(1,000 short tons of K₂O)

Item	1964-65 <u>1/</u>	1965-66
<u>Supply from domestic production:</u>		
Potassium chloride	2,527	2,336
Potassium sulfate <u>2/</u>	212	210
All other	35	35
Total	<u>2,774</u>	<u>2,581</u>
<u>Imports</u>		
Potassium chloride	840	1,342
Potassium sulfate <u>2/</u>	28	22
All other	16	15
Total	<u>884</u>	<u>1,379</u>
<u>Exports</u>		
Potassium chloride	537	555
Potassium sulfate <u>2/</u>	64	73
All other	24	10
Total	<u>625</u>	<u>638</u>
NET DOMESTIC SUPPLY	3,033	3,322

1/ Revised.

2/ Includes potassium-magnesium sulfate.

actively exploring for potash. Locations involved are geothermal brine deposits in the Salton Sea area of California, mineral deposits in Utah, a new area in Arizona, an underground lake in Nevada, and expanded extraction from Great Salt Lake in Utah.

Three companies in Canada have an estimated annual capacity of 1,920,000 tons of K_2O . Five additional companies have announced plans to build plants there. If these plans materialize, the eight active companies will have an estimated capacity of 6.8 million tons of K_2O . Twenty other companies are reported to be planning, probing, leasing and/or prospecting for potash in Canada.

Foreign Trade in Fertilizers

Canada is the major source of U. S. fertilizer imports (table 7). Imports of potassium chloride from Canada have reached a level where 39 percent of the net U. S. supply in 1965-66 is expected to be from there. Canada's urea capacity has increased until in 1964-65 over 50 percent of U. S. imports came from there.

Imports of urea in 1964-65 were 34,074 tons less than in the previous year (table 8). The quantity entering through the Vermont, Buffalo, Montana-Idaho and Duluth customs districts was from Canada plus a portion of that through Washington and Hawaii. Country of origin is given in Table 7.

Imports of anhydrous ammonia and potassium chloride show significant increases in 1964-65 over a year earlier (table 9). The increase in anhydrous ammonia is from the Caribbean area primarily for use in Gulf and Atlantic coast finishing plants. The increase in potassium chloride tonnage is from the recently developed Canadian potash deposits.

Exports of ammonium sulfate, phosphate rock, concentrated superphosphate and potassium chloride each were over the one-half million ton level in 1964-65 (table 10), having grown during the last five years (table 11). Ammonium phosphates have tripled in volume in the last three years.

Mexico is an important customer for most of the fertilizers exported by U. S. producers, although Japan is the leading one for phosphate rock and potassium chloride. Countries in Europe took 35.6 percent of the phosphate rock.

Countries with active AID programs, India, Pakistan, South Korea and Viet Nam, took 62 percent of the ammonium sulfate exports in 1964-65. They also got 34 percent of the concentrated superphosphate, 58 percent of ammonium phosphates, 57 percent of mixed fertilizers and 7 percent of potassium chloride. Requirements for AID programs form a large part of U. S. fertilizer exports.

Table 7. -- U. S. imports of selected fertilizer materials by country of origin, 1964-65
(Short tons of material)

Country of origin	Ammonium: sulfate	Ammonium: nitrate	Calcium: nitrate	Urea	Anhydrous: ammonia	Phosphate: crude	Potassium: chloride	Potassium: sulfate	Potassium: nitrate	Other
Canada	189,804	180,018	46	126,593	11,706	2	1,102,873	224		8,758
Mexico						20,001	50			225
Trinidad	1,515			17,317	139,496					
Netherlands Antilles				10,571	13,095	93,490				
Chile									10,723	2,246
Brazil					9,229					41
Norway		51	39,176	38,295						
Netherlands				9,609						
Belgium				15,219			6,503			
France				5,620			106,815	21,957		25
West Germany	1 500		1,090	12,036			129,952	25,097		4,971
Spain							53,088			500
Italy				5,512				8,820		
Morocco						8,894				
Ghana						32,668				
Other				5,570	4,221	5,022				529
Total	192,819	180,069	40,312	246,342	177,747	160,077	1,399,281	56,098	10,723	17,295

1/ Other materials imported, mainly from Canada, were the following: 73,685 tons of nitrogen solutions, 22,074 tons of calcium cyanamide, 111,579 tons of ammonium phosphates, 160,076 tons of mixed fertilizers, 61,750 tons of phosphatic fertilizers; also 366,363 tons of nitrate of soda from Chile. Other products were 4,813 tons of potassium nitrate and 19,455 of nitrogenous fertilizers and fertilizer materials.

Table 8. -- U. S. imports of urea by customs districts, 1961-62 to 1964-65 inclusive

(Short tons of material)

Customs district	: 1961-62	: 1962-63	: 1963-64	: 1964-65
01-Maine & New Hampshire	: 296	: 485	: 50	: 50
02-Vermont	: 9,794	: 10,472	: 9,006	: 7,886
04-Massachusetts	: 790	: 893	: 1,292	: 95
07-St. Lawrence	: 557	: 570	: 590	: 642
09-Buffalo	: 20,949	: 29,895	: 22,332	: 28,064
10-New York	: 2,311	: 2,205	: 12,943	: 295
11-Philadelphia	: 953	: 744	: 2,481	: 2,408
13-Maryland	: 15	: 1,129	: 816	: ---
14-Virginia	: 992	: 11,250	: 26,378	: 10,948
15-North Carolina	: 5,520	: 8,761	: 6,813	: 15,431
16-South Carolina	: 350	: 60	: 20	: 150
17-Georgia	: 8,665	: 12,120	: 180	: 9,624
18-Florida	: 1,292	: 2,156	: 13,636	: 1,322
19-Mobile	: ---	: 9,740	: 45	: ---
20-New Orleans	: 523	: ---	: 84	: 220
22-Galveston	: 1,290	: 4,057	: 10,701	: 565
23-Laredo	: ---	: ---	: 300	: ---
25-San Diego	: 1,206	: 627	: 150	: 400
27-Los Angeles	: 5,521	: 7,810	: 16,512	: 13,715
28-San Francisco	: 7,238	: 12,914	: 12,639	: 11,470
29-Oregon	: 15,919	: 21,770	: 15,248	: 13,863
30-Washington	: 7,594	: 10,680	: 36,754	: 28,562
31-Alaska	: 22	: 50	: ---	: ---
32-Hawaii	: 20,897	: 30,232	: 27,910	: 26,943
33-Montana & Idaho	: 3,937	: 4,202	: 26,104	: 30,581
34-Dakota	: ---	: ---	: 957	: 309
36-Duluth	: ---	: 885	: 3,524	: 4,958
38-Michigan	: 11,793	: 12,532	: 24,419	: 24,721
39-Chicago	: ---	: 48	: 130	: ---
43-Tennessee	: ---	: 43	: ---	: ---
49-Puerto Rico	: 8,453	: 14,556	: 8,402	: 13,120
Total	: 137,296	: 213,886	: 280,416	: 246,342

Table 9. -- U. S. imports of selected fertilizers, 1960-61 to 1964-65 inclusive
(Short tons of material)

Material	:	:	:	:	:	:
	:	1960-61	1961-62	1962-63	1963-64	1964-65
	:	:	:	:	:	:
Ammonium sulfate	:	193,800:	269,893:	225,553:	227,704:	192,819
Ammonium nitrate (32% & less):	:	91,110:	107,369:	65,702:	49,549:	3
Calcium nitrate	:	77,742:	40,895:	48,460:	55,001:	40,312
Urea	:	90,262:	136,773:	213,886:	280,416:	246,342
Synthetic nitrogenous	:	:	:	:	:	:
material n.e.c.	:	28,135:	67,911:	60,803:	18,798:	19,455
Phosphate, crude	:	157,669:	128,898:	172,230:	187,756:	160,077
Potassium chloride	:	348,025:	330,380:	682,864:	1,043,303:	1,399,281
Potassium sulfate	:	75,963:	91,476:	117,952:	94,628:	56,098
Potassium-sodium nitrate	:	20,461:	25,751:	29,894:	29,533:	10,723
Nitrogen solutions	:	60,453:	74,842:	73,559:	82,042:	73,685
Ammonium nitrate	:	170,753:	189,991:	254,524:	217,735:	180,069
Calcium cyanamide	:	43,856:	39,754:	33,987:	28,320:	22,074
Sodium nitrate	:	408,246:	490,336:	378,825:	396,958:	366,363
Ammonium phosphates	:	102,038:	144,930:	153,850:	106,432:	111,579
Mixed fertilizers	:	297,963:	267,247:	162,184:	146,052:	160,076
Anhydrous ammonia	:	:	:	:	90,803:	177,747
	:	:	:	:	:	:

Table 10. -- U. S. exports of selected fertilizer materials by destination, 1964-65
(Short tons of material)

Country of destination	Ammonium sulfate	Ammonium and aqua ammonia	Ammonium nitrate	Urea	Phosphate rock (all)	Normal superphosphate	Concentrated superphosphate	Potassium chloride	Ammonium phosphates	Mixed fertilizers
Canada	8,010	14,253	1,221	3,860	1,379,207	93,130	32,881	26,582	15,224	4,728
Mexico	30,768	109,078	63,097	20,592	224,935	73	32,335	32,335	10,643	6,011
El Salvador	1,003	7	6,000	30	5,410		9,731	6,859	331	10,112
Costa Rica	17			11	10,697	1,032	1,638	12,523	24,080	1,476
Dominican Republic	25,955	18		1,078	7,610		5,710	4,314	2,225	1,771
Central America, Other	176	27	121	3,118	26	55	4,734	2,916	10,694	17,950
West Indies, British	67		447	94	337	860	311	381	334	8,601
West Indies, Other	8,884	32	408	190	5,567		8,749	10,491	4,299	960
Colombia	49		308		24,270		45,770	30,949	11,503	1,130
Venezuela		40	5,183	100	21,808	78	6,007	9	2,420	2,420
Peru	39	10	8,054	1,737	19,961		379	220	708	1,727
Chile		24	4,476	309			94,809	16,393		
Brazil	95,679		441	10	213,439	3,857	51,371	41,375	292	1,435
South America, Other	13,277		547	2,477	17,565	56	5,035	2,789	8,467	7,482
Sweden			105		49,715		19,688	19,688		1
Norway					12,398		4,884	4,884		
Denmark					19,190					5
United Kingdom					276,796		727	727	7,056	106
Netherlands					67,104		63,422	4,480	13,226	4,865
France					61,031		22,349	2,571	10,239	24
West Germany			20	101		11,200	548	3,145		794
East Germany				10	1,016,084	19,834				
Spain	48,579				123,558				22	77
Italy				100	870,246		4,300	10,876		5
Europe, Other	315		24	58	20,820		11,421	4,480	1,102	79
India	364,292				23,510			2,571	12,220	59,095
Pakistan	13,083			18			1,471			
Viet Nam	20,817			2,490	22,466		51	1,653	4,231	58,951
Malaysia	2,205	67	100		22,664			93	22	22
Philippines			470	55	31,188			5,902	1,164	684
Korea							196,836	57,573	201,764	5,163
Taiwan								11,575	11,133	
Japan					1,816,125		1,716	366,121	5,473	255
Asia, Other	208	182	1,864	144	995		7,463	2,195	6,678	13,924
Australia	9,999		990	3,254	558,415			46,530	3,348	44
New Zealand			88	258	149,504			120,046	1,510	3,841
Oceania, Other		4							16	98
Republic of South Africa			22,702				13,351	42,805	502	6
Africa, Other	788	327	162	1,768			10	590	326	1,119
Total	654,210	124,069	116,828	41,783	7,072,641	130,102	584,129	895,495	368,912	214,967

1/ Other materials exported were: 569 tons of nitrate of soda, 47,395 tons of nitrogenous chemical fertilizer materials, n.e.c., 29,906 tons of organic waste, n.e.c., 44,311 tons of phosphatic fertilizer materials, n.e.c., and 128,405 tons of potassic fertilizer materials, n.e.c.

Table 11. -- U. S. exports of selected fertilizers, 1960-61 to 1964-65 inclusive

(Short tons of material)

Material	: : 1960-61	: : 1961-62	: : 1962-63	: : 1963-64	: : 1964-65
Ammonium sulfate	: 209,167:	: 430,282:	: 485,900:	: 413,451:	: 644,210
Sodium nitrate	: 1,123:	: 1,341:	: 1,499:	: 1,794:	: 569
Anhydrous ammonia	: 87,782:	: 80,515:	: 50,243:	: 81,543:	: 124,069
Ammonium nitrate	: 33,507:	: 37,631:	: 26,764:	: 39,173:	: 116,828
Urea	: 96,621:	: 92,579:	: 24,769:	: 44,446:	: 41,783
Synthetic nitrogenous materials n.e.c.	: 48,519:	: 9,612:	: 9,486:	: 45,847:	: 47,395
Phosphate rock	: 4,465,094:	: 4,689,035:	: 4,930,901:	: 6,663,973:	: 7,072,641
Normal superphosphate	: 140,749:	: 128,782:	: 120,367:	: 154,289:	: 130,102
Concentrated superphosphate	: 361,485:	: 490,499:	: 438,964:	: 579,391:	: 584,129
Potassium chloride	: 760,791:	: 775,147:	: 637,736:	: 804,779:	: 895,495
Potassium sulfates	: 36,774:	: 62,127:	: 35,411:	: 50,943:	: 128,405
Ammonium phosphate	: 118,925:	: 75,715:	: 122,419:	: 274,291:	: 368,912
Mixed fertilizers	: 86,646:	: 73,957:	: 87,656:	: 164,881:	: 214,967

References to current fertilizer data

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1. Current Industrial Reports, Inorganic Chemicals, Series M28A Bureau of the Census.
2. Preliminary Report on U. S. Production of Selected Synthetic Organic Chemicals, S.O.C. Series C (a monthly report); and Synthetic Organic Chemicals - United States Production and Sales (an annual report), Chemical Division, U. S. Tariff Commission (for urea).
3. Coke and Coal Chemicals, Monthly Coke Report, Mineral Industry Surveys, Bureau of Mines.
4. Nitrogen, The Magazine of World Nitrogen, The British Sulphur Corporation Ltd., 43 Great Titchfield Street, London, W. 1, England.

Phosphate production

1. Current Industrial Reports, Superphosphate and other Phosphatic Fertilizer Materials, Series M28D, Bureau of the Census.
2. Current Industrial Reports, Inorganic Chemicals, Series M28A, Bureau of the Census (for phosphoric acid).
3. Phosphate Rock, Mineral Market Reports, Mineral Industry Surveys, Bureau of Mines.

Potash production

1. Potash, Mineral Market Reports, Mineral Industry Surveys, Bureau of Mines.
2. Press releases, American Potash Institute, Inc., 1102 Sixteenth St., N. W., Washington, D. C. 20036

Foreign trade

1. U. S. Imports of Merchandise for Consumption, Report No. FT 125; U. S. Exports of Domestic and Foreign Merchandise, Report No. FT 410; both FT 125 and FT 410 are reports of the Foreign Trade Division, Bureau of the Census.

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